

SEQUENCE LISTING

<110> Hartley, James L.  
Brasch, Michael A.  
Temple, Gary F.  
Cheo, David

<120> Compositions and Methods for Use in Recombinational  
Cloning of Nucleic Acids

<130> 0942.4680003

<140> 09/517,466

<141> 2000-03-02

<150> US 60/122,389

<151> 1999-03-02

<150> US 60/126,049

<151> 1999-03-23

<150> US 60/136,744

<151> 1999-05-28

<160> 285

<170> PatentIn version 3.1

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ttttacgttt ctggttcagc ttttttgtac aaagttggca ttataaaaaa gcattgctca 180

tcaatttggt gcaacgaaca ggtcactatc agtcaaaaata aaatcattat ttg 233

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cttgtacaaa gtgggt 135

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cccagctttc ttgtacaaag tggtn

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24

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22

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<220>

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primer can have variable length up to maximum of  
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acaagtttgt acaaaaaagc aggctn

26

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<223> attB1- and attB2-derived Oligonucleotide Primer

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<221> misc\_feature

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<223> attB1- and attB2-derived Oligonucleotide Primer

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<221> misc\_feature

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about 100 kbp; some residues may be missing

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13

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agaaagctgg gtn

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<210> 27

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primer can have variable length up to maximum of  
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aaaagcaggc tn

12

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<223> attB1- and attB2-derived Oligonucleotide Primer

<220>

<221> misc\_feature

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gaaagctggg tn

12

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<211> 11

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<223> attB1- and attB2-derived Oligonucleotide Primer

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aaagcaggct n

11

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<223> attB2 Oligonucleotide Primer

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<223> attB1 fused into a His6 fusion vector

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Lys	Lys	Ala	Gly	Phe	Glu	Asn	Leu	Tyr	Phe	Gln	Gly	Thr	Met
			20					25					30

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Gly	Ile	Thr	Ser	Leu	Tyr	Lys	Lys	Ala	Gly	Phe
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<223> attL Right PCR Primer

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<223> attR1 PCR Primer

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<223> attR2

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<223> attR Right

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cagacggcat gatgaacctg aa

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<223> B1-Hgb oligonucleotide

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<223> B2-Hgb oligonucleotide

<400> 43

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<223> 18B1-Hgb oligonucleotide

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tgtacaaaaa agcaggct

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<223> 18B2-Hgb oligonucleotide

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tgtacaagaa agctgggt

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<223> 15B1-Hgb oligonucleotide

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<223> 15B2-Hgb oligonucleotide

<400> 47  
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<223> 12B1-Hgb oligonucleotide

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aaaagcaggc t

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gaaagctggg t

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<223> 10B1-Hgb oligonucleotide

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aaagcaggct

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<210> 69

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<210> 72

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<210> 73

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<210> 75

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<210> 86

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<223> attL5

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<222> (658)..(757)

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<223> attL2

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<223> 'n' can be any nucleotide (A, T, C, G or U)

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atc cgg tac cga att c 64  
Ile Arg Tyr Arg Ile  
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1 5 10 15

48

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62

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1					5					10					15		

g																	50
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<400> 191

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Leu	Tyr	Lys	Lys	Ala	Gly	Ser	Leu	Lys	Glu	Pro	Ile	Gln	Ser	Thr	Gly	
1				5					10					15		

tcc	ggt	acc	gaa	ttc	gatcgc	69
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<210> 193

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<400> 193

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Ile	Arg	Tyr	Arg	Ile
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	1				5				10					15			

g																	50
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1				5				10					15		

<210> 200

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR5 multiple cloning site

<220>

<221> CDS

<222> (1)..(63)

<223>

<400> 200

ttg tac aaa aaa gca ggc ttt cat atg gga acc aat tca gtc gac tgg 48  
Leu Tyr Lys Lys Ala Gly Phe His Met Gly Thr Asn Ser Val Asp Trp  
1 5 10 15

atc cgg tac cga att cgc 66  
Ile Arg Tyr Arg Ile  
20

<210> 201

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR5 multiple cloning site

<400> 201

Leu Tyr Lys Lys Ala Gly Phe His Met Gly Thr Asn Ser Val Asp Trp  
1 5 10 15

Ile Arg Tyr Arg Ile  
20

<210> 202

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR5 multiple cloning site

<400> 202

agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g 51



<210> 203

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR6 multiple cloning site

<220>

<221> CDS

<222> (1)..(60)

<223>

<400> 203

ttg	tac	aaa	aaa	gca	ggc	tgc	atg	cga	acc	aat	tca	gtc	gac	tgg	atc	48
Leu	Tyr	Lys	Lys	Ala	Gly	Cys	Met	Arg	Thr	Asn	Ser	Val	Asp	Trp	Ile	
1				5				10						15		

cgg	tac	cga	att	cgc												63
Arg	Tyr	Arg	Ile													
			20													

<210> 204

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR6 multiple cloning site

<400> 204

Leu	Tyr	Lys	Lys	Ala	Gly	Cys	Met	Arg	Thr	Asn	Ser	Val	Asp	Trp	Ile	
1				5				10						15		

Arg	Tyr	Arg	Ile													
			20													

<210> 205

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR6 multiple cloning site

<400> 205

agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g 51

<210> 206

<211> 84

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR7 multiple cloning site

<220>

<221> CDS

<222> (1)..(81)

<223>

<400> 206

ttg tac aaa aaa gca ggc ttt gaa aac ctg tat ttt caa gga acc gtt 48  
Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Val  
1 5 10 15

tca tgc atc gtc gac tgg atc cgg tac cga att cgc 84  
Ser Cys Ile Val Asp Trp Ile Arg Tyr Arg Ile  
20 25

<210> 207

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR7 multiple cloning site

<400> 207

Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Val  
1 5 10 15

Ser Cys Ile Val Asp Trp Ile Arg Tyr Arg Ile  
20 25

<210> 208

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR7 multiple cloning site

<400> 208

agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g

51

<210> 209

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR8 multiple cloning site

<220>

<221> CDS

<222> (1)..(78)

<223>

<400> 209

ttg tac aaa aaa gca ggc ttt gaa aac ctg tat ttt caa gga acc atg  
Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Met  
1 5 10 15

48

gac cta gtc gac tgg atc cgg tac cga att cgc  
Asp Leu Val Asp Trp Ile Arg Tyr Arg Ile  
20 25

81

<210> 210

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR8 multiple cloning site

<400> 210

Leu	Tyr	Lys	Lys	Ala	Gly	Phe	Glu	Asn	Leu	Tyr	Phe	Gln	Gly	Thr	Met
1				5					10					15	

Asp	Leu	Val	Asp	Trp	Ile	Arg	Tyr	Arg	Ile
			20					25	

<210> 211

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR8 multiple cloning site

<400> 211

agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g

51

<210> 212

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR9 multiple cloning site

<220>

<221> CDS

<222> (1)..(78)

<223>

<400> 212  
 ttg tac aaa aaa gca ggc ttt gaa aac ctg tat ttt caa gga cat atg 48  
 Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly His Met  
 1 5 10 15  
 aga tct gtc gac tgg atc cgg tac cga att cgc 81  
 Arg Ser Val Asp Trp Ile Arg Tyr Arg Ile  
 20 25

<210> 213

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR9 multiple cloning site

<400> 213

Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly His Met  
 1 5 10 15  
 Arg Ser Val Asp Trp Ile Arg Tyr Arg Ile  
 20 25

<210> 214

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR9 multiple cloning site

<400> 214  
 agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g 51

<210> 215

<211> 84

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR10 multiple cloning site

<220>

<221> CDS

<222> (1)..(81)

<223>

<400> 215

ttg tac aaa aaa gca ggc ttc gaa cta agg aaa tac tta cat atg gga	48
Leu Tyr Lys Lys Ala Gly Phe Glu Leu Arg Lys Tyr Leu His Met Gly	
1 5 10 15	

acc aat tca gtc gac tgg atc cgg tac cga att cgc	84
Thr Asn Ser Val Asp Trp Ile Arg Tyr Arg Ile	
20 25	

<210> 216

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR10 multiple cloning site

<400> 216

Leu Tyr Lys Lys Ala Gly Phe Glu Leu Arg Lys Tyr Leu His Met Gly	
1 5 10 15	

Thr Asn Ser Val Asp Trp Ile Arg Tyr Arg Ile	
20 25	

<210> 217

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR10 multiple cloning site

<400> 217

agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g

51

<210> 218

<211> 88

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR11 multiple cloning site

<220>

<221> CDS

<222> (1)..(87)

<223>

<400> 218

ttg tac aaa aaa gca ggc ttc gaa gga gat aga acc aat tct cta agg  
Leu Tyr Lys Lys Ala Gly Phe Glu Gly Asp Arg Thr Asn Ser Leu Arg  
1 5 10 15

48

aaa tac tta acc atg gtc gac tgg atc cgg tac cga att c  
Lys Tyr Leu Thr Met Val Asp Trp Ile Arg Tyr Arg Ile  
20 25

88

<210> 219

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR11 multiple cloning site

<400> 219

Leu Tyr Lys Lys Ala Gly Phe Glu Gly Asp Arg Thr Asn Ser Leu Arg  
1 5 10 15

Lys Tyr Leu Thr Met Val Asp Trp Ile Arg Tyr Arg Ile  
 20 25

<210> 220

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR11 multiple cloning site

<220>

<221> CDS

<222> (2)..(49)

<223>

<400> 220

g	aat	tcg	cgg	cgg	cac	tcg	aga	tat	cta	gac	cca	gct	ttc	ttg	tac	aaa	49
	Asn	Ser	Arg	Pro	His	Ser	Arg	Tyr	Leu	Asp	Pro	Ala	Phe	Leu	Tyr	Lys	
	1				5				10				15				

g 50

<210> 221

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR11 multiple cloning site

<400> 221

Asn	Ser	Arg	Pro	His	Ser	Arg	Tyr	Leu	Asp	Pro	Ala	Phe	Leu	Tyr	Lys
1				5				10				15			

<210> 222

<211> 120

<212> DNA



<213> Artificial Sequence

<220>

<223> pDEST1

<400> 222

atgagctgtt gacaattaat catccggctc gtataatgtg tgggaattgtg agcggataac 60

aatttcacac aggaaacaga caggtatagg atcacaagtt tgtacaaaaa agctgaacga 120

<210> 223

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST2

<220>

<221> CDS

<222> (94)..(135)

<223>

<400> 223

aatattctga aatgagctgt tgacaattaa tcatccggctc cgtataatct gtggaattgt 60

gagcggataa caatttcaca caggaaacag acc atg tcg tac tac cat cac cat 114

Met Ser Tyr Tyr His His His  
1 5

cac cat cac ggc atc aca agt ttgtacaaaa aagctgaa 153

His His His Gly Ile Thr Ser  
10

<210> 224

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST2

<400> 224

Met Ser Tyr Tyr His His His His His His Gly Ile Thr Ser  
1 5 10

<210> 225

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST3

<220>

<221> CDS

<222> (106)..(120)

<223>

<400> 225  
cggttctggc aaatattctg aaatgagctg ttgacaatta atcatcggct cgtataatgt 60  
gtggaattgt gagcggataa caatttcaca caggaaacag tattc atg tcc cct ata 117  
Met Ser Pro Ile  
1  
cta ggttattgga aaattaaggg ccttggtgcaa ccc 153  
Leu  
5

<210> 226

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST3

<400> 226

Met Ser Pro Ile Leu  
1 5

<210> 227

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST3

<220>

<221> CDS

<222> (10)..(63)

<223>

<400> 227

ctgggttcg	cgt	gga	tct	cgt	cgt	gca	tct	gtt	gga	tcc	cca	tca	aca	agt	51
	Arg	Gly	Ser	Arg	Arg	Ala	Ser	Val	Gly	Ser	Pro	Ser	Thr	Ser	
	1				5					10					

ttg	tac	aaa	aaa	gctgaacgag	aaacgtaaaa	tgatataaat	atcaatata	102
Leu	Tyr	Lys	Lys					
15								

<210> 228

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST3

<400> 228

Arg	Gly	Ser	Arg	Arg	Ala	Ser	Val	Gly	Ser	Pro	Ser	Thr	Ser	Leu	Tyr
1				5					10					15	

Lys Lys

<210> 229

<211> 255

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST4

<220>

<221> CDS

<222> (97)..(246)

<223>

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<400> 229
gcaaataattc tgaaatgagc tgttgacaat taatcatccg gtccgtataa tctgtggaat      60
tgtgagcggg taacaatttc acacaggaaa cagacc atg ggt cat cat cat cat      114
                                     Met Gly His His His His
                                     1                    5
cat cac gat tac gat atc cca acg acc gaa aac ctg tat ttt cag ggc      162
His His Asp Tyr Asp Ile Pro Thr Thr Glu Asn Leu Tyr Phe Gln Gly
                10                15                20
gcc cat atg agc gat aaa att att cac ctg act gac gac agt gat gac      210
Ala His Met Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Asp Asp
                25                30                35
gat gac aag gta ccc atc aca agt ttg tac aaa aaa gctgaacga      255
Asp Asp Lys Val Pro Ile Thr Ser Leu Tyr Lys Lys
                40                45                50

```

<210> 230

<211> 50

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST4

<400> 230

```

Met Gly His His His His His His Asp Tyr Asp Ile Pro Thr Thr Glu
1                    5                10                15
Asn Leu Tyr Phe Gln Gly Ala His Met Ser Asp Lys Ile Ile His Leu
                20                25                30

```

Thr Asp Asp Ser Asp Asp Asp Asp Lys Val Pro Ile Thr Ser Leu Tyr  
 35 40 45

Lys Lys  
 50

<210> 231

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST5

<400> 231  
 aggcacccca ggctttacac tttatgcttc cggctcgtat gttgtgtgga attgtgagcg 60  
 gataacaatt tcacacagga aacagctatg accatgatta cgccaagctc taatacgact 120  
 cactataggg aaagctggta cgcttgcagg taccgggtccg gaattcccgg gtcgacgata 180  
 acaagtttgt acaaaaaagc tgaa 204

<210> 232

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST5

<400> 232  
 tttaggtttc tcgttcagct ttcttgtaca aagtgggtgat cactagtcgg cggccgctct 60  
 agaggatcca agcttacgta cgcgtgcatg cgacgtcata gctcttctat agtgtcacct 120  
 aaattcaatt cactggccgt cgttttataa cgtcgtgact gggaaaaccc tggcgttacc 180  
 caacttaatc gccttgcagc acat 204

<210> 233

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST6

<400> 233

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taacgccagg gttttcccag tcacgacgtt gtaaaacgac ggccagtgaa ttgaatttag      60
gtgacactat agaagagcta tgacgtcgca tgcacgcgta cgtaagcttg gatcctctag      120
agcggccgcc gactagtgat cacaagtttg tacaaaaaag ctgaacgaga aacgtaaaat      180
gatataaata tcaatatatt aaat                                             204
```

<210> 234

<211> 255

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST6

<400> 234

```
tatttatatc attttacgtt tctcgttcag ctttcttgta caaagtgggtg atcgtcgacc      60
cggaattcc ggaccggtac ctgcaggcgt accagctttc cctatagtga gtcgtattag      120
agcttggcgt aatcatggtc atagctgttt cctgtgtgaa attgttatcc gtcacaatt      180
ccacacaaca tacgagccgg aagcataaag tgtaaagcct ggggtgccta atgagtgagc      240
taactcacat taatt                                                         255
```

<210> 235

<211> 306

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST7

<400> 235

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ccattgacgc aaatgggcgg taggcgtgta cgggtgggagg tctatataag cagagctcgt      60
ttagtgaacc gtcagatcgc ctggagacgc catccacgct gttttgacct ccatagaaga      120
```

caccgggacc gatccagcct ccggactcta gcctaggccg cggagcggat aacaatttca	180
cacaggaaac agctatgacc actaggcttt tgcaaaaagc tatttaggtg acactataga	240
aggtacgcct gcaggtaccg gtccggaatt cccatcaciaa gtttgtacaa aaaagctgaa	300
cgagaa	306

<210> 236

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST8

<400> 236

cgtatactcc ggaatattaa tagatcatgg agataattaa aatgataacc atctcgcaaa	60
taaataagta ttttactggt ttcgtaacag ttttgaata aaaaaaccta taaatattcc	120
ggattattca taccgtccca ccatcgggag cggatcatca caagtttgta caaaaaagct	180
gaacgagaaa cgtaaaatga tata	204

<210> 237

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST9

<400> 237

ttggcgaggg acattaaggc gtttaagaaa ttgagaggac ctgttatata cctctacggc	60
ggtcctagat tgggtgcgta atacacagaa ttctgattgg atcccggtcc gaagcgcgct	120
ttcccatcaa caagtttgta caaaaaagct gaa	153

<210> 238

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST10

<220>

<221> CDS

<222> (109)..(201)

<223>

<400> 238

aaataagtat tttactgttt tcgtaacagt tttgtaataa aaaaacctat aaatattccg 60

gattattcat accgtccac catcgggcgc ggatctcggt ccgaaacc atg tcg tac 117  
Met Ser Tyr  
1

tac cat cac cat cac cat cac gat tac gat atc cca acg acc gaa aac 165  
Tyr His His His His His His Asp Tyr Asp Ile Pro Thr Thr Glu Asn  
5 10 15

ctg tat ttt cag ggc atc aca agt ttg tac aaa aaa gct 204  
Leu Tyr Phe Gln Gly Ile Thr Ser Leu Tyr Lys Lys  
20 25 30

<210> 239

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST10

<400> 239

Met Ser Tyr Tyr His His His His His His Asp Tyr Asp Ile Pro Thr  
1 5 10 15

Thr Glu Asn Leu Tyr Phe Gln Gly Ile Thr Ser Leu Tyr Lys Lys  
20 25 30

<210> 240

<211> 204

<212> DNA



<213> Artificial Sequence

<220>

<223> pDEST11

<400> 240

tagtgaaccg tcagatcgcc tggagacgcc atccacgctg ttttgacctc catagaagac	60
accgggaccg atccagcctc cgcgggccccg aattcgagct cggtagcccg ggatcctcta	120
gagtcgaggt cgacggtatc gataagcttg atatcaacaa gtttgtacaa aaaagctgaa	180
cgagaaacgt aaaatgatat aaat	204

<210> 241

<211> 255

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST12.2

<400> 241

accgtcagat cgcttgagga cgccatccac gctgttttga cctccataga agacaccggg	60
accgatccag cctccggact ctagecctagg ccgcggagcg gataacaatt tcacacagga	120
aacagctatg accattagga ctttgcaaaa agctatttag gtgacactat agaaggtagc	180
cctgcaggta ccggtccgga attcccatca acaagtttgt acaaaaaagc tgaacgagaa	240
acgtaaaatg atata	255

<210> 242

<211> 300

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST13

<400> 242

tgggcaaacc aagacagcta aagatctctc acctaccaa caatgcccc ctgcaaaaaa	60
taaattcata taaaaaacat acagataacc atctgcggtg ataaattatc tctggcggtg	120

ttgacataaa taccactggc ggtgatactg agcacatcag caggacgcac tgaccaccat 180  
gaaggtgacg ctcttaaaaa ttaagccctg aagaagggca gcattcaaag cagaaggctt 240  
tgggggtgtgt gatacgaaac gaagcattgg gatcatcaca agtttgtaca aaaaagctga 300

<210> 243

<211> 120

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST14

<400> 243

tgccggccac gatgcgtccg gcgtagagga tcgagatctc gatcccgcga aattaatacg 60  
actcactata gggagaccac aacggtttcc ctctagatca caagtttgta caaaaaagct 120

<210> 244

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST15

<220>

<221> misc\_feature

<222> (1)..(1)

<223> 'n' can be any nucleotide (A, T, C, G or U)

<220>

<221> CDS

<222> (106)..(120)

<223>

<400> 244

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natcgagatc tcgatcccg c gaaattaata cgactcacta tagggagacc acaacgggtt      60
ccctctagaa ataattttgt ttaactttaa gaaggagata tacat atg tcc cct ata      117
                                     Met Ser Pro Ile
                                     1
cta ggttattgga aaattaaggg ccttgtgcaa ccactcgac ttcttttgga      170
Leu
5
atatcttgaa gaaaaatatg aagagcattt gtat      204

```

<210> 245

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST15

<220>

<221> misc\_feature

<222> (1)..(1)

<223> may be any nucleotide

<400> 245

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Met Ser Pro Ile Leu
1           5

```

<210> 246

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST15

<220>

<221> CDS

<222> (70)..(99)

<223>

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<400> 246
cagggctggc aagccacgtt tgggtgggtggc gaccatcctc caaaatcgga tctgggttccg      60
cgtccatgg tcg aat caa aca agt ttg tac aaa aaa gct gaacgagaaa      109
      Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala
      1          5          10
cgtaaaatga tataaatatc aatatattaa attagatttt gcat      153
```

<210> 247

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST15

<400> 247

```
Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1          5          10
```

<210> 248

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST16 multiple cloning site

<220>

<221> CDS

<222> (100)..(111)

<223>

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<400> 248
gatctcgatc ccgcgaaatt aatacgactc actataggga gaccacaacg gtttccctct      60
agaaataatt ttgtttaact ttaagaagga gatatacat atg agc gat aaa      111
      Met Ser Asp Lys
      1
```

attattcacc tgactgacga cagttttgac acggatgtac tc 153

<210> 249

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST16 multiple cloning site

<400> 249

Met Ser Asp Lys  
1

<210> 250

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST16 multiple cloning site

<220>

<221> CDS

<222> (82)..(123)

<223>

<400> 250

gtggcgga ccaaagtggg tgcactgtct aaaggtcagt tgaaagagtt cctcgacgct 60

aacctggccg gttctgggtc t ggt gat gac gat gac aag atc aca agt ttg 111  
Gly Asp Asp Asp Asp Lys Ile Thr Ser Leu  
1 5 10

tac aaa aaa gct gaacgagaaa cgtaaaatga tataaatatc 153  
Tyr Lys Lys Ala

<210> 251

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST16 multiple cloning site

<400> 251

Gly	Asp	Asp	Asp	Asp	Lys	Ile	Thr	Ser	Leu	Tyr	Lys	Lys	Ala
1				5					10				

<210> 252

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST17 multiple cloning site

<220>

<221> CDS

<222> (94)..(153)

<223>

<400> 252

gatccgcgca	aattaatacg	actcactata	gggagaccac	aacgggtttcc	ctctagaaat	60
------------	------------	------------	------------	-------------	------------	----

aattttgttt	aactttaaga	aggagatata	cat	atg	tcg	tac	tac	cat	cac	cat	114
				Met	Ser	Tyr	Tyr	His	His	His	
				1				5			

cac	cat	cac	ctc	gaa	tca	aca	agt	ttg	tac	aaa	aaa	gct	153
His	His	His	Leu	Glu	Ser	Thr	Ser	Leu	Tyr	Lys	Lys	Ala	
		10					15					20	

<210> 253

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST17 multiple cloning site

<400> 253

Met Ser Tyr Tyr His His His His His His Leu Glu Ser Thr Ser Leu  
1 5 10 15

Tyr Lys Lys Ala  
20

<210> 254

<211> 420

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST18 p10 Promoter

<400> 254

gaagacctcg gccgtcgcg cgcttgccgg tgggtgctgac cccggatgaa gtgggttcgca 60  
tcctcggttt tctggaaggc gagcatcggt tgttcgcca ggactctagc tatagttcta 120  
gtgggttggt acgtatcgag caagaaaata aaacgccaaa cgcgttggag tcttgtgtgc 180  
tatttttaca aagattcaga aatacgcac acttacaaca agggggacta tgaaattatg 240  
cattttgagg atgccgggac ctttaattca acccaacaca atatattata gttaaataag 300  
aattatttat caaatcattt gtatattaat taaaatacta tactgtaaat tacattttat 360  
ttacaatgag gatcatcaca agtttgtaca aaaaagctga acgagaaacg taaaatgata 420

<210> 255

<211> 300

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST19 39K Promoter

<400> 255

ggtgacgccg tcacgtttcc attgtaacgt aaatggcaac ttgtagatga acgcgctgtc 60  
aaaaaacgg ccagtttctt ccacaaactc gcgcacggct gtctcgtaaa cttttgcgtc 120

```

gcaacaatcg cgatgacctc gtggtatgga aattttttct aaaaaagtgt cgttcatgtc 180
ggcggcgggcg ttgcgctcc ggtacgcgcg acgggcacac agcaggacag cttgtccgg 240
ctcgattatc ataaacaatc ctgcaggcat gcaagctgga tcatacaag tttgtacaaa 300

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<210> 256

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST20 Polyhedron Promoter

<220>

<221> CDS

<222> (163)..(174)

<223>

<400> 256

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ggctacgtat actccggaat attaatagat catggagata attaaaatga taaccatctc 60
gcaaataaat aagtatttta ctgttttcgt aacagttttg taataaaaaa acctataaat 120
attccggatt attcataccg tcccaccatc gggcgcggat cc atg gcc cct ata 174
                                     Met Ala Pro Ile
                                     1
ctaggttatt ggaaaattaa gggccttgtg 204

```

<210> 257

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST20 Polyhedron Promoter

<400> 257

Met Ala Pro Ile

1



<210> 258

<211> 95

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST20 Polyhedron Promoter

<220>

<221> CDS

<222> (1)..(48)

<223>

<400> 258

tcg gat ctg gtt ccg cgt cat aat caa aca agt ttg tac aaa aaa gct	48
Ser Asp Leu Val Pro Arg His Asn Gln Thr Ser Leu Tyr Lys Lys Ala	
1 5 10 15	

gaacgagaaa cgtaaaatga tataaatatc aatatattaa attagat	95
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<210> 259

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST20 Polyhedron Promoter

<400> 259

Ser Asp Leu Val Pro Arg His Asn Gln Thr Ser Leu Tyr Lys Lys Ala	
1 5 10 15	

<210> 260

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST21 Promoter region

<220>

<221> CDS

<222> (163)..(180)

<223>

<400> 260

ttgccgcttt gctatcaagt ataaatagac ctgcaattat taatcttttg tttcctcgtc 60

attgttctcg ttccctttct tccttgtttc tttttctgca caatatttca agctatacca 120

agcatacaat caactccaag cttgaagcaa gcctcctgaa ag atg aag cta ctg 174

Met Lys Leu Leu  
1

tct tct atcgaacaag catgcgatat ttgc 204

Ser Ser  
5

<210> 261

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST21 Promoter region

<400> 261

Met Lys Leu Leu Ser Ser

1 5

<210> 262

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST21 Promoter region

<220>

<221> CDS

<222> (37)..(78)

<223>

<400> 262

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gaagagagta gtaacaaagg tcaaagacag ttgact gta tcg tcg agg tcg aat      54
                               Val Ser Ser Arg Ser Asn
                               1           5
```

```
caa aca agt ttg tac aaa aaa gct gaacgagaaa cgtaaaatga tata      102
Gln Thr Ser Leu Tyr Lys Lys Ala
                10
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<210> 263

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST21 Promoter region

<400> 263

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Val Ser Ser Arg Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1           5           10
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<210> 264

<211> 255

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST22 Promoter region

<220>

<221> CDS

<222> (217)..(228)

<223>

<400> 264  
acgcacacta ctctctaatg agcaacggta tacggccttc cttccagtta cttgaatttg 60  
aaataaaaaa agtttgccgc tttgctatca agtataaata gacctgcaat tattaatctt 120  
ttgtttcctc gtcattgttc tcgttccctt tcttccttgt ttctttttct gcacaatatt 180  
tcaagctata ccaagcatac aatcaactcc aagctt atg ccc aag aag 228  
Met Pro Lys Lys  
1  
aagcggaagg tctcgagcgg cgccaat 255

<210> 265

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST22 Promoter region

<400> 265

Met Pro Lys Lys  
1

<210> 266

<211> 82

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST22

<220>

<221> CDS

<222> (28)..(66)

<223>

<400> 266  
gaagataccc caccaaacc aaaaaaa gag ggt ggg tcg aat caa aca agt ttg 54  
Glu Gly Gly Ser Asn Gln Thr Ser Leu

1

5

tac aaa aaa gct gaacgagaaa cgtaaa  
Tyr Lys Lys Ala  
10

82

<210> 267

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST22

<400> 267

Glu Gly Gly Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala  
1 5 10

<210> 268

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST23 T7 promoter

<400> 268

atccccgcgaa attaatacga ctactatag ggagaccaca acggtttccc tctagatcac 60

aagtttgtag aaaaaagctg aacgagaaac gtaaaatgat at 102

<210> 269

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST23 T7 promoter

<220>

<221> CDS

<222> (61)..(126)

<223>

<400> 269

tttttatgca aaatctaatt taatatattg atatttatat cattttacgt ttctcgttca 60

gct ttc ttg tac aaa gtg gtg att atg tcg tac tac cat cac cat cac 108

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Tyr Tyr His His His His  
1 5 10 15

cat cac ctc gat gag caa taactagcat aacccttgg ggcctct 153

His His Leu Asp Glu Gln  
20

<210> 270

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST23 T7 promoter

<400> 270

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Tyr Tyr His His His His  
1 5 10 15

His His Leu Asp Glu Gln  
20

<210> 271

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST24 T7 promoter

<400> 271

atcgagatct cgatcccgcg aaattaatac gactcactat aggagacca caacgggttc 60

cctctagatc acaagtttgt acaaaaaagc tgaacgagaa ac 102

<210> 272  
<211> 102  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> pDEST24 T7 promoter  
<220>  
<221> CDS  
<222> (22)..(60)  
<223>

<400> 272  
tcattttacg tttctcggttc a gct ttc ttg tac aaa gtg gtg att atg tcc 51  
Ala Phe Leu Tyr Lys Val Val Ile Met Ser  
1 5 10  
cct ata cta ggttattgga aaattaaggg ccttgtgcaa cccactcgac tt 102  
Pro Ile Leu

<210> 273  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> pDEST24 T7 promoter  
<400> 273  
Ala Phe Leu Tyr Lys Val Val Ile Met Ser Pro Ile Leu  
1 5 10

<210> 274  
<211> 102  
<212> DNA  
<213> Artificial Sequence

<220>

<223> pDEST25 T7 promoter

<220>

<221> misc\_feature

<222> (1)..(1)

<223> 'n' can be any nucleotide (A, T, C, G or U)

<400> 274

nagatctcga tcccgcgaaa ttaatacgac tcactatagg gagaccacaa cggtttcct 60

ctagatcaca agtttgtaca aaaaagctga acgagaaacg ta 102

<210> 275

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST25 T7 promoter

<220>

<221> CDS

<222> (19)..(60)

<223>

<400> 275

ttttacgttt ctcgttca gct ttc ttg tac aaa gtg gtg att atg agc gat 51

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Asp  
1 5 10

aaa att att cacctgactg acgacagttt tgacacggat gtactcaaag cg 102

Lys Ile Ile

<210> 276

<211> 14

<212> PRT



<213> Artificial Sequence

<220>

<223> pDEST25 T7 promoter

<400> 276

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Asp Lys Ile Ile  
1 5 10

<210> 277

<211> 306

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST26 CMV promoter

<220>

<221> CDS

<222> (238)..(297)

<223>

<400> 277

ttgacgtcaa tgggagtttg ttttggcacc aaaatcaacg ggactttcca aaatgtcgta 60

acaactccgc cccattgacg caaatgggag gtaggcgtgt acggtgggag gtctatataa 120

gcagagctcg tttagtgaac cgtcagatcg cctggagacg ccatccacgc tgttttgacc 180

tccatagaag acaccgggac cgatccagcc tccggactct agcctaggcc gcggacc 237

atg gcg tac tac cat cac cat cac cat cac tct aga tca aca agt ttg 285

Met Ala Tyr Tyr His His His His His His Ser Arg Ser Thr Ser Leu  
1 5 10 15

tac aaa aaa gct gaacgagaa 306

Tyr Lys Lys Ala  
20

<210> 278

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST26 CMV promoter

<400> 278

Met Ala Tyr Tyr His His His His His Ser Arg Ser Thr Ser Leu  
1 5 10 15

Tyr Lys Lys Ala  
20

<210> 279

<211> 255

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST27 promoter

<220>

<221> misc\_feature

<222> (1)..(1)

<223> 'n' can be any nucleotide (A, T, C, G or U)

<220>

<221> CDS

<222> (139)..(153)

<223>

<400> 279  
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gccatccacg ctgttttgac ctccatagaa gacaccggga ccgatccagc ctccggactc 120  
tagcctaggc cgcggacc atg gcc cct ata cta gggtattgga aaattaaggg 173  
Met Ala Pro Ile Leu  
1 5  
ccttggtgcaa cccactcgac ttctttttgga atatcttgaa gaaaaatatg aagagcattt 233

gtatgagcgc gatgaagggtg at

255

<210> 280

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST27 promoter

<220>

<221> misc\_feature

<222> (1)..(1)

<223> 'n' can be any nucleotide (A, T, C, G or U)

<400> 280

Met Ala Pro Ile Leu  
1 5

<210> 281

<211> 87

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST27 promoter

<220>

<221> CDS

<222> (37)..(75)

<223>

<400> 281

tttggtggtg gcgaccatcc tccaaaatcg gatctg gtt ccg cgt tct aga tca  
Val Pro Arg Ser Arg Ser  
1 5

54

aca agt ttg tac aaa aaa gct gaacgagaaa cg  
Thr Ser Leu Tyr Lys Lys Ala

87

10

<210> 282  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>

<223> pDEST27 promoter

<400> 282

Val	Pro	Arg	Ser	Arg	Ser	Thr	Ser	Leu	Tyr	Lys	Lys	Ala
1				5					10			

<210> 283  
<211> 405  
<212> DNA  
<213> Artificial Sequence

<220>

<223> pEXP501

<400> 283

agagctcggt tagtgaaccg tcagatcgcc tggagacgcc atccacgctg ttttgacctc	60
catagaagac accgggaccg atccagcctc cggactctag cctaggccgc ggagcggata	120
acaatttcac acaggaaaca gctatgacca ttaggcctat ttaggtgaca ctatagaaca	180
agtttgtaca aaaaagcagg ctggtaccgg tccggaattc ccgggatatc gtcgacgagc	240
tcactagtcg gcggccgctc tagagtatcc ctcgaggggc ccaagcttac gcgtacccag	300
ctttcttgta caaagtggtc cctatagtga gtcgtattat aagctaggca ctggccgctc	360
ttttacaacg tcgtgactgg gaaaactgct agcttgggat ctttg	405

<210> 284  
<211> 153  
<212> DNA  
<213> Artificial Sequence

<220>

<223> His6-CAT

<220>

<221> CDS

<222> (31)..(153)

<223>

<400> 284

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cggataacaa tttcacacag gaaacagacc atg tcg tac tac cat cac cat cac      54
                               Met Ser Tyr Tyr His His His His
                               1                               5

cat cac ggc atc aca agt ttg tac aaa aaa gca ggc ttt gaa aac ctg      102
His His Gly Ile Thr Ser Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu
    10                      15                      20

tat ttt caa gga acc atg gag aaa aaa atc act gga tat acc acc gtt      150
Tyr Phe Gln Gly Thr Met Glu Lys Lys Ile Thr Gly Tyr Thr Thr Val
    25                      30                      35                      40

gat
Asp
                                           153

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<210> 285

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> His6-CAT

<400> 285

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Met Ser Tyr Tyr His His His His His His Gly Ile Thr Ser Leu Tyr
1                               5                               10                               15

Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Met Glu Lys
    20                      25                      30

Lys Ile Thr Gly Tyr Thr Thr Val Asp
    35                      40

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